



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,044	11/17/2003	Takashi Ipposhi	245112US-2DIV	1153
22850	7590	01/10/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			TRAN, THIEN F	
			ART UNIT	PAPER NUMBER
			2811	

DATE MAILED: 01/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/713,044	Applicant(s) IPPOSHI ET AL.	
	Examiner Thien F. Tran	Art Unit 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-16 is/are pending in the application.
- 4a) Of the above claim(s) 8 and 11-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-7, 9, 10 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/814,116.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/17/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Election/Restrictions***

Applicant's election with traverse of species 1 of Figure 29 with claims 5-7, 9, 10 and 16 readable thereon in the reply filed on 10/22/2004 is acknowledged. The traversal is on the ground(s) that the office has not provided adequate basis to support a conclusion of patentable distinctness or shown that a serious burden exists in searching the entire application. This is not found persuasive because it is well settled that species are required to be restricted if it is shown that these species are distinct as set forth in the restriction requirement. Also, applicant does not admit that the embodiments claimed are obvious variants of each other. Therefore, the examiner takes that statement as applicant believes that there is more than one species claimed. Furthermore, applicant cannot assume that there can be no serious burden on the examiner since there are many ways to establish burden on an examiner.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the pn junction (J5) which is applied with voltage; and a maximum value of a distance between the pn junction J5 and a boundary between the metallic compound layer 12s and the semiconductor film not more than 2um in the elected Figure 29 must be shown or the feature(s) canceled from the claim(s). Also, a first semiconductor layer of a first conductivity type, a second semiconductor layer of

Art Unit: 2811

the first conductivity type having an impurity concentration lower than that of the first semiconductor layer, a third semiconductor layer of a second conductivity type opposite to the first conductivity type and a fourth semiconductor layer of the second conductivity type having an impurity concentration lower than that of the third semiconductor layer, and a maximum value of a distance between the pn junction J5 and a boundary between the isolator (41 or 42) and the semiconductor film being not more than 2 μm in the elected Figure 29 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant

Art Unit: 2811

will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 9 is objected to because of the following informalities: line 3, "no" should be --on--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 9 and 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The disclosure regarding to the elected species 1 of Figure 29 does not provide the ordinary skill artisan with a reasonable expectation of success in creating or carrying out the claimed subject matter, since it does not provide any guidance as to how such a pn junction is applied with voltage; and a maximum value of a distance between the pn junction and a boundary between the metallic compound layer and the semiconductor film is not more than 2um. Without this disclosure, one of ordinary skill cannot practice the invention without undue experimentation because of the number of operational parameters in the process. Applicant is requested to point out exactly wherein the application that discloses the species 1 of Figure 29 having a

Art Unit: 2811

pn junction (J5) which is applied with voltage; and a maximum value of a distance between the pn junction J5 and a boundary between the metallic compound layer 12s and the semiconductor film 10 is not more than 2 μ m.

Claims 16 and 5-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The disclosure regarding to the elected species 1 of Figure 29 does not provide the ordinary skill artisan with a reasonable expectation of success in creating or carrying out the claimed subject matter, since it does not provide any guidance as to how such a first semiconductor layer of a first conductivity type, a second semiconductor layer of the first conductivity type having an impurity concentration lower than that of the first semiconductor layer, a third semiconductor layer of a second conductivity type opposite to the first conductivity type and a fourth semiconductor layer of the second conductivity type having an impurity concentration lower than that of the third semiconductor layer are formed. Without this disclosure, one of ordinary skill cannot practice the invention without undue experimentation because of the number of operational parameters in the process. Applicant is requested to point out exactly wherein the application that discloses the species 1 of Figure 29 having a first semiconductor layer of a first conductivity type, a second semiconductor layer of the first conductivity type having an impurity concentration lower than that of the first semiconductor layer, a third semiconductor layer of a

Art Unit: 2811

second conductivity type opposite to the first conductivity type and a fourth semiconductor layer of the second conductivity type having an impurity concentration lower than that of the third semiconductor layer, and a maximum value of a distance between the pn junction J5 and a boundary between the isolator (41 or 42) and the semiconductor film being not more than 2 μm .

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thien F. Tran whose telephone number is (571) 272-1665. The examiner can normally be reached on 8:30AM - 5:00PM Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (571) 272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit: 2811

tt

December 28, 2004

A handwritten signature in black ink, appearing to read "Thien Tran".

**THIENTRAN
PRIMARY EXAMINER**